EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	21	"1004664"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:14
L2	2	"5972337".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:27
L3	284	discoidin and domain	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:27
L4	27	discoidin.ab. and domain	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:33
L5	3	(discoidin.ab. and domain) and (EGF domain) and SED1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:34
L6	3	(discoidin.ab. and domain) and (EGF domain)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:34
L7	9	(discoidin.ab. and domain) and EGF	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:36

EAST Search History

L8	3	(discoidin.ab. and domain) and SED1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:37
L9	5	(discoidin and domain) and SED1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:38
L10	58	SED1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/03 11:39

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File 5:Biosis Previews(R) 1926-2007/Nov W4
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Set	Items	Description
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	1776863	C
S1	2	DISCOIDIN()C

? t s1/7/1-2

1/7/1
DIALOG(R)File 5:Biosis Previews(R)

17912995 BIOSIS NO.: 200400283752
Identification of mouse sperm SED1, a bi-motif EGF repeat and discoidin-domain protein involved in sperm-egg binding
AUTHOR: Ensslin Michael A (Reprint); Shur Barry D
AUTHOR ADDRESS: Dept. of Cell Biology, Emory University School of Medicine, 615 Michael Street, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: mensslin@cellbio.emory.edu
JOURNAL: FASEB Journal 18 (4-5): pAbst. 759.2 2004 2004
MEDIUM: e-file
CONFERENCE/MEETING: FASEB Meeting on Experimental Biology: Translating the Genome Washington, District of Columbia, USA April 17-21, 2004; 20040417
SPONSOR: FASEB
ISSN: 0892-6638 _(ISSN print)
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Successful fertilization in mammals is dependent upon the species-specific recognition, adhesion and fusion between sperm and egg. Despite their fundamental importance, we still know little about the molecular basis underlying these events. Two sperm-egg recognition events have received the most attention; the initial adhesion between the sperm plasma membrane and the egg extracellular coat, or zona pellucida; and binding between membranes of the acrosome-reacted sperm and the egg plasma membrane. In this study we report the identification of SED1, a protein required for mouse sperm binding to the egg coat. SED1 is homologous to a small group of Secreted cell-matrix adhesive proteins that contain Notch-like EGF repeats and Discoidin/F5/8 type C domains. SED1 is expressed in the Golgi of spermatogenic cells and is secreted by the initial segment of the caput epididymis, resulting in SED1 localization on the sperm plasma membrane overlying the acrosome. SED1 binds specifically to the zona pellucida of unfertilized oocytes, but not to the zona of fertilized eggs. Recombinant SED1 and anti-SED1 antibodies competitively inhibit sperm-egg binding, as do truncated SED1 proteins containing a %%%discoidin%%%/%%%C%%% domain. SED1-null males are subfertile and their sperm are unable to bind to the egg coat in vitro. These studies illustrate that Notch-like EGF and %%%discoidin%%%/%%%C%%% domains, protein motifs that facilitate a range of cellular interactions, participate in gamete recognition as well.

1/7/2
DIALOG(R)File 5:Biosis Previews(R)

17512324 BIOSIS NO.: 200300481043
Identification of mouse sperm SED1, a bimotif EGF repeat and discoidin-domain protein involved in sperm-egg binding.
AUTHOR: Ensslin Michael A; Shur Barry D (Reprint)
AUTHOR ADDRESS: Department of Cell Biology, Emory University School of Medicine, 615 Michael Street, Whitehead Biomedical Research Building, Room 405, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Cell 114 (4): p405-417 August 22, 2003 2003
MEDIUM: print
ISSN: 0092-8674
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: We report the identification of SED1, a protein required for mouse sperm binding to the egg zona pellucida. SED1 is homologous to a small group of secreted cell-matrix adhesive proteins that contain Notch-like EGF repeats and discoidin/F5/8 type C domains. SED1 is expressed in spermatogenic cells and is secreted by the initial segment of the caput epididymis, resulting in SED1 localization on the sperm plasma membrane overlying the acrosome. SED1 binds specifically to the zona pellucida of unfertilized oocytes, but not to the zona of fertilized eggs. Recombinant SED1 and anti-SED1 antibodies competitively inhibit sperm-egg binding, as do truncated SED1 proteins containing a %%%discoidin%%%/%%%C%%% domain. SED1 null males are subfertile and their sperm are unable to bind to the egg coat in vitro. These studies illustrate that Notch-like EGF and %%%discoidin%%%/%%%C%%% domains, protein motifs that facilitate a variety of cellular interactions, participate in gamete recognition as well.
? s discoidin and EGF and SED?
415 DISCOIDIN
25518 EGF
184218 SED?
S2 8 DISCOIDIN AND EGF AND SED?
? t s2/7/1-8

2/7/1
DIALOG(R)File 5:Biosis Previews(R)

0019570970 BIOSIS NO.: 200700230711
The %%%EGF%%% repeat and %%%discoidin%%% domain protein, %%%SED1%%%/MFG-E8, is required for mammary gland branching morphogenesis
AUTHOR: Ensslin Michael A; Shur Barry D (Reprint)
AUTHOR ADDRESS: Emory Univ, Sch Med, Dept Cell Biol, Atlanta, GA 30322 USA **USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 104 (8): p2715-2720 FEB 20 2007 2007
ISSN: 0027-8424
DOCUMENT TYPE: Article
RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: %%%SED1%%%, also known as MFG-E8, is a secreted protein composed of two %%%EGF%%% repeats (the second of which contains an RGD motif) and two %%%discoidin%%%/Factor V/VIII C domains. %%%SED1%%% is expressed by a wide range of cell types, where it participates in diverse cellular interactions, such as sperm binding to the egg coat and macrophage recognition of apoptotic lymphocytes. Although %%%SED1%%% was originally identified as a milk protein, its function in the mammary gland remains unclear; suggested functions include inhibition of viral infection and clearance of apoptotic cells during mammary gland involution. We report here that %%%SEDI%%% has an unexpected obligatory role during mammary gland development. Unlike that seen in WT glands, %%%SED1%%%-null glands show severely reduced branching from epithelial ducts and from terminal end buds, which are thin and poorly developed. %%%SED1%%% is expressed by both luminal and myoepithelial cells in the developing epithelial duct, and binds to alpha(v) integrin receptors on myoepithelial cells leading to MAPK activation and cell proliferation. The absence of %%%SED1%%% leads to greatly reduced levels of activated MAPK and a concomitant reduction in cell proliferation and branching throughout the epithelial tree. These results suggest that %%%SED1%%% contributes, at least partly, to the intercellular signaling between luminal and myoepithelial cells that is required for branching morphogenesis.

2/7/2
DIALOG(R)File 5:Biosis Previews(R)

19352270 BIOSIS NO.: 200700012011
What factors mediate sperm pairing in monodelphis domestica?
AUTHOR: Cruz Yolanda P (Reprint); Sasaki Mark M; Chock Atley; Perloff Emily ; Bedzra Edo S; Pokusa Jacqueline E
AUTHOR ADDRESS: Oberlin Coll, Oberlin, OH 44074 USA**USA
JOURNAL: Developmental Biology 295 (1): p465 JUL 1 2006 2006
CONFERENCE/MEETING: 65th Annual Meeting of the Society-for-Developmental-Biology Ann Arbor, MI, USA June 17 -21, 2006; 20060617
SPONSOR: Soc Dev Biol
ISSN: 0012-1606
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Citation
LANGUAGE: English

2/7/3
DIALOG(R)File 5:Biosis Previews(R)

19234072 BIOSIS NO.: 200600579467
Accelerated evolution and loss of a domain of the sperm-egg-binding protein %%%SED1%%% in ancestral primates
AUTHOR: Podlaha Ondrej (Reprint); Webb David M; Zhang Jianzhi
AUTHOR ADDRESS: Univ Michigan, Dept Ecol and Evolutionary Biol, Ann Arbor, MI 48109 USA**USA
AUTHOR E-MAIL ADDRESS: jianzhi@umich.edu
JOURNAL: Molecular Biology and Evolution 23 (10): p1828-1831 OCT 2006 2006

ISSN: 0737-4038
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Proteins involved in sperm-egg binding have been shown to evolve rapidly in several groups of invertebrates and vertebrates. Mammalian %%%SED1%%% (secreted protein containing N-terminal Notch-like type II epidermal growth factor (%%%EGF%%%) repeats and C-terminal %%%discoidin%%%/F5/8 C domains) is a recently identified sperm surface protein that binds the egg zona pellucida and facilitates sperm-egg adhesion. %%%SED1%%%-null male mice are subfertile. Here we examine the %%%SED1%%% gene from 11 mammalian species and provide evidence that it underwent accelerated evolution in ancestral primates, most likely driven by positive selection. Specifically, the intensity of the positive selection across various protein domains of %%%SED1%%% was heterogeneous. Although one of the 2 Notch-like %%%EGF%%% domains, which mediate protein-protein binding, was lost in primate %%%SED1%%%, the second %%%EGF%%% domain evolved under strong positive selection favoring polar to nonpolar amino acid replacements. By contrast, the 2 %%%discoidin%%% /F5/8 type C domains, which are involved in protein-cell membrane binding, do not show definite signs of positive selection. The structural modification and occurrence of directional selection in ancestral primates but not any other lineage suggest that the function of %%%SED1%%% may have changed during primate evolution. These results reveal a different evolutionary pattern of %%%SED1%%% from that of many other sperm-egg-binding proteins, which often show diversifying selection occurring in multiple lineages.

2/7/4
DIALOG(R)File 5:Biosis Previews(R)

19130258 BIOSIS NO.: 200600475653
Identification of novel gamete receptors that mediate sperm adhesion to the egg coat
AUTHOR: Shur Barry D (Reprint); Rodeheffer Carey; Ensslin Michael A; Lyng Robert; Raymond Adam
AUTHOR ADDRESS: Emory Univ, Sch Med, Dept Cell Biol, 615 Michael St, Atlanta, GA 30322 USA**USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Molecular and Cellular Endocrinology 250 (1-2): p137-148 MAY 16 2006 2006
ISSN: 0303-7207
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Mammalian fertilization is initiated by the species-specific binding of sperm to the zona pellucida, or egg coat. Earlier studies suggested that sperm-egg adhesion in mouse is mediated by the binding of beta 1,4-galactosyltransferase-I (GalT) on the sperm surface to specific glycoside ligands on the egg coat glycoprotein, ZP3. Binding of multiple ZP3 oligosaccharides induces GalT aggregation, triggering a pertussis toxin-sensitive G-protein cascade leading to induction of the acrosome reaction. Consistent with this, sperm bearing targeted deletions in GalT

are unable to bind ZP3 nor undergo ZP3-dependent acrosomal exocytosis; however, GalT-null sperm are still able to bind to the egg coat. This indicates that sperm-egg binding requires at least two independent binding mechanisms: a GAlT-ZP3-independent event that mediates initial adhesion, followed by a GAlT-ZP3 interaction that facilitates acrosomal exocytosis. During the past few years, novel GAlT-ZP3-independent gamete receptors have been identified that appear to participate in initial gamete adhesion. On such receptor is %%%SED1%%%, an %%%EGF%%% repeat and %%%discoidin%%% domain protein that coats sperm as they traverse through the epididymis, and which is required for sperm to bind the egg coat. Similarly, a novel egg coat ligand is present on ovulated oocytes, but not on ovarian eggs, and which also appears to function in initial sperm binding. The identification of novel gamete receptors that are required for sperm-egg binding opens up new avenues for the development of specific contraceptive strategies.

2/7/5
DIALOG(R)File 5:Biosis Previews(R)

18108491 BIOSIS NO.: 200500015556
%%%SED1%%% function during mammalian sperm-egg adhesion
AUTHOR: Shur Barry D (Reprint); Ensslin Michael A; Rodeheffer Carey
AUTHOR ADDRESS: Sch MedDept Cell Biol, Emory Univ, Whitehead Biomed Res Bldg,615 Michael St, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Current Opinion in Cell Biology 16 (5): p477-485 October 2004 2004
MEDIUM: print
ISSN: 0955-0674 _(ISSN print)
DOCUMENT TYPE: Article; Literature Review
RECORD TYPE: Citation
LANGUAGE: English

2/7/6
DIALOG(R)File 5:Biosis Previews(R)

17912995 BIOSIS NO.: 200400283752
Identification of mouse sperm %%%SED1%%%, a bi-motif %%%EGF%%% repeat and %%%discoidin%%%-domain protein involved in sperm-egg binding
AUTHOR: Ensslin Michael A (Reprint); Shur Barry D
AUTHOR ADDRESS: Dept. of Cell Biology, Emory University School of Medicine, 615 Michael Street, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: mensslin@cellbio.emory.edu
JOURNAL: FASEB Journal 18 (4-5): pAbst. 759.2 2004 2004
MEDIUM: e-file
CONFERENCE/MEETING: FASEB Meeting on Experimental Biology: Translating the Genome Washington, District of Columbia, USA April 17-21, 2004; 20040417
SPONSOR: FASEB
ISSN: 0892-6638 _(ISSN print)
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Successful fertilization in mammals is dependent upon the species-specific recognition, adhesion and fusion between sperm and egg. Despite their fundamental importance, we still know little about the molecular basis underlying these events. Two sperm-egg recognition events have received the most attention; the initial adhesion between the sperm plasma membrane and the egg extracellular coat, or zona pellucida; and binding between membranes of the acrosome-reacted sperm and the egg plasma membrane. In this study we report the identification of %%%SED1%%% , a protein required for mouse sperm binding to the egg coat. %%%SED1%%% is homologous to a small group of Secreted cell-matrix adhesive proteins that contain Notch-like %%%EGF%%% repeats and %%%Discoidin%%%/F5/8 type C domains. %%%SED1%%% is expressed in the Golgi of spermatogenic cells and is secreted by the initial segment of the caput epididymis, resulting in %%%SED1%%% localization on the sperm plasma membrane overlying the acrosome. %%%SED1%%% binds specifically to the zona pellucida of unfertilized oocytes, but not to the zona of fertilized eggs. Recombinant %%%SED1%%% and anti-%%%SED1%%% antibodies competitively inhibit sperm-egg binding, as do truncated %%%SED1%%% proteins containing a %%%discoidin%%% /C domain. %%%SED1%%%-null males are subfertile and their sperm are unable to bind to the egg coat in vitro. These studies illustrate that Notch-like %%%EGF%%% and %%%discoidin%%%/C domains, protein motifs that facilitate a range of cellular interactions, participate in gamete recognition as well.

2/7/7
DIALOG(R)File 5:Biosis Previews(R)

17512324 BIOSIS NO.: 200300481043
Identification of mouse sperm %%%SED1%%%, a bimotif %%%EGF%%% repeat and %%%discoidin%%%-domain protein involved in sperm-egg binding.
AUTHOR: Ensslin Michael A; Shur Barry D (Reprint)
AUTHOR ADDRESS: Department of Cell Biology, Emory University School of Medicine, 615 Michael Street, Whitehead Biomedical Research Building, Room 405, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Cell 114 (4): p405-417 August 22, 2003 2003
MEDIUM: print
ISSN: 0092-8674
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: We report the identification of %%%SED1%%%, a protein required for mouse sperm binding to the egg zona pellucida. %%%SED1%%% is homologous to a small group of secreted cell-matrix adhesive proteins that contain Notch-like %%%EGF%%% repeats and %%%discoidin%%%/F5/8 type C domains. %%%SED1%%% is expressed in spermatogenic cells and is secreted by the initial segment of the caput epididymis, resulting in %%%SED1%%% localization on the sperm plasma membrane overlying the acrosome. %%%SED1%%% binds specifically to the zona pellucida of unfertilized oocytes, but not to the zona of fertilized eggs. Recombinant %%%SED1%%% and anti-%%%SED1%%% antibodies competitively inhibit sperm-egg binding, as do truncated %%%SED1%%% proteins containing a %%%discoidin%%%/C domain. %%%SED1%%% null males are subfertile and their sperm are unable

to bind to the egg coat in vitro. These studies illustrate that Notch-like %%%EGF%%% and %%%discoidin%%%/C domains, protein motifs that facilitate a variety of cellular interactions, participate in gamete recognition as well.

2/7/8
DIALOG(R)File 5:Biosis Previews(R)

16622321 BIOSIS NO.: 200200215832
Secretion of a peripheral membrane protein, MFG-E8, as a complex with membrane vesicles. A possible role in membrane secretion
AUTHOR: Oshima Kenji; Aoki Naohito; Kato Takeo; Kitajima Ken; Matsuda Tsukasa (Reprint)
AUTHOR ADDRESS: Department of Applied Molecular Biosciences, Graduate School of Bioagricultural Sciences, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8601, Japan**Japan
JOURNAL: European Journal of Biochemistry 269 (4): p1209-1218 February, 2002 2002
MEDIUM: print
ISSN: 0014-2956
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: MFG-E8 (milk fat globule-%%%EGF%%% factor 8) is a peripheral membrane glycoprotein, which is expressed abundantly in lactating mammary glands and is secreted in association with fat globules. This protein consists of two-repeated %%%EGF%%%-like domains, a mucin-like domain and two-repeated %%%discoidin%%%-like domains (C-domains), and contains an integrin-binding motif (RGD sequence) in the %%%EGF%%%-like domain. To clarify the role of each domain on the peripheral association with the cell membrane, several domain-deletion mutants of MFG-E8 were expressed in COS-7 cells. The immunofluorescent staining of intracellular and cell-surface proteins and biochemical analyses of cell-surface-biotinylated and secreted proteins demonstrated that both of the two C-domains were required for the membrane association. During the course of these studies for domain functions, MFG-E8, but not C-domain deletion mutants, was shown to be secreted as membrane vesicle complexes. By size-exclusion chromatography and ultracentrifugation analyses, the complexes were characterized to have a high-molecular mass, low density and higher %%%sedimentation%%% velocity and to be detergent-sensitive. Not only such a exogenously expressed MFG-E8 but also that endogenously expressed in a mammary epithelial cell line, COMMA-1D, was secreted as the membrane vesicle-like complex. Scanning electron microscopic analyses revealed that MFG-E8 was secreted into the culture medium in association with small membrane vesicles with a size from 100 to 200 nm in diameter. Furthermore, the expression of MFG-E8 increased the number of these membrane vesicle secreted into the culture medium. These results suggest a possible role of MFG-E8 in the membrane vesicle secretion, such as budding or shedding of plasma membrane (micro-vesicles) and exocytosis of endocytic multivesicular bodies (exosomes).

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? s discoidin and SED?
            415  DISCOIDIN
         184218  SED?
     S3      12  DISCOIDIN AND SED?
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               8  S2
      S4       4  S3 NOT S2
? t s4/7/1-4

 4/7/1
DIALOG(R)File   5:Biosis Previews(R)
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18343838   BIOSIS NO.: 200510038338
RS1, a %%%discoidin%%% domain-containing retinal cell adhesion protein
  associated with X-linked retinoschisis, exists as a novel
  disulfide-linked octamer
AUTHOR: Wu Winco W H; Wong Julie P; Kast Juergen; Molday Robert S (Reprint)
AUTHOR ADDRESS: Univ British Columbia, Dept Biochem, 2222 Hlth Sci Mall,
  Vancouver, BC V6T 1Z3, Canada**Canada
AUTHOR E-MAIL ADDRESS: molday@interchange.ubc.ca
JOURNAL: Journal of Biological Chemistry  280 (11): p10721-10730 MAR 18 05
2005
ISSN: 0021-9258
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: RS1, also known as retinoschisin, is an extracellular protein
  that plays a crucial role in the cellular organization of the retina.
  Mutations in RS1 are responsible for X-linked retinoschisis, a common,
  early-onset macular degeneration in males that results in a splitting of
  the inner layers of the retina and severe loss in vision. RS1 is
  assembled and secreted from photoreceptors and bipolar cells as a
  homo-oligomeric protein complex. Each subunit consists of a 157-amino
  acid %%%discoidin%%% domain flanked by two small segments of 39 and 5
  amino acids. To begin to understand how the structure of RS1 relates to
  its role in retinal cell adhesion and X-linked retinoschisis, we have
  determined the subunit organization and disulfide bonding pattern of RS1
  by SDS gel electrophoresis, velocity %%%sedimentation%%%, and mass
  spectrometry. Our results indicate that RS1 exists as a novel octamer in
  which the eight subunits are joined together by Cys(59)-Cys(223)
  intermolecular disulfide bonds. Subunits within the octamer are further
  organized into dimers mediated by Cys(40)-Cys(40) bonds. These cysteines
  lie just outside the %%%discoidin%%% domain indicating that these
  flanking segments primarily function in the octamerization of RS1. Within
  the %%%discoidin%%% domain, two cysteine pairs (Cys(63)-Cys(219) and
  Cys(110)-Cys(142)) form intramolecular disulfide bonds that are important
  in protein folding, and one cysteine (Cys(83)) exists in its reduced
  state. Because mutations that disrupt subunit assembly cause X-linked
  retinoschisis, the assembly of RS1 into a disulfide-linked homo-octamer
  appears to be critical for its function as a retinal cell adhesion
  protein.

 4/7/2
DIALOG(R)File   5:Biosis Previews(R)
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17745317   BIOSIS NO.: 200400116074
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Dd-STATb, a Dictyostelium STAT protein with a highly aberrant SH2 domain, functions as a regulator of gene expression during growth and early development.
AUTHOR: Zhukovskaya Natasha V; Fukuzawa Masashi; Tsujioka Masatsune; Jermyn Keith A; Kawata Takefumi; Abe Tomoaki; Zvelebil Marketa; Williams Jeffrey G
AUTHOR E-MAIL ADDRESS: j.g.williams@dundee.ac.uk
JOURNAL: Development (Cambridge) 131 (2): p447-458 January 2004 2004
MEDIUM: print
ISSN: 0950-1991
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Dictyostelium, the only known non-metazoan organism to employ SH2 domain:phosphotyrosine signaling, possesses STATs (signal transducers and activators of transcription) and protein kinases with orthodox SH2 domains. Here, however, we describe a novel Dictyostelium STAT containing a remarkably divergent SH2 domain. Dd-STATb displays a 15 amino acid insertion in its SH2 domain and the conserved and essential arginine residue, which interacts with phosphotyrosine in all other known SH2 domains, is substituted by leucine. Despite these abnormalities, Dd-STATb is biologically functional. It has a subtle role in growth, so that Dd-STATb-null cells are gradually lost from the population when they are cocultured with parental cells, and microarray analysis identified several genes that are either underexpressed or overexpressed in the Dd-STATb null strain. The best characterised of these, %%%discoidin%%% 1, is a marker of the growth-development transition and it is overexpressed during growth and early development of Dd-STATb null cells. Dimerisation of STAT proteins occurs by mutual SH2 domain:phosphotyrosine interactions and dimerisation triggers STAT nuclear accumulation. Despite its aberrant SH2 domain, the Dd-STATb protein %%%sediments%%% at the size expected for a homodimer and it is constitutively enriched in the nucleus. Moreover, these properties are retained when the predicted site of tyrosine phosphorylation is substituted by phenylalanine. These observations suggest a non-canonical mode of activation of Dd-STATb that does not rely on orthodox SH2 ddmain:phosphotyrosine interactions.

4/7/3

06577554 BIOSIS NO.: 198273081481
DIFFERENTIAL CELL COHESIVENESS EXPRESSED BY PRE SPORE AND PRE STALK CELLS OF DICTYOSTELIUM-DISCOIDEUM
AUTHOR: LAM T Y (Reprint); PICKERING G; GELTOSKY J; SIU C H
AUTHOR ADDRESS: BANTING AND BEST DEP OF MED RESEARCH, CH BEST INST, UNIV OF TORONTO, TORONTO, ONTARIO M5G 1L6**CANADA
JOURNAL: Differentiation 20 (1): p22-28 1981
ISSN: 0301-4681
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Pseudoplasmodia of D. discoideum at the culmination stage were separated into 2 cell populations by %%%sedimentation%%% in a

discontinuous renografin gradient. The 2 lighter fractions (I and II) had enzymatic activities characteristic of the anterior prestalk cells, while the heaviest fraction (III) showed enzyme activities characteristic of the posterior prespore cells. Cell-cell adhesion among prespore cells is much mroe resistant to EDTA dissociation than 10-h cells and prestalk cells. Fab [antigen-binding] fragments prepared from antibodies directed against a specific cell surface glycoprotein gp150 were more effective in dissociating prespore cells than prestalk cells. Prespore cells contained an .apprx. 2-fold higher concentration of the endogenous carbohydrate binding protein %%%discoidin%%%-I than prestalk cells. These differences may account for the differential cohesiveness of these 2 cell populations and provide a basis for cell recognition and cell sorting at the slug stage.

4/7/4
DIALOG(R)File 5:Biosis Previews(R)

04867427 BIOSIS NO.: 197661033566
PALLIDIN PURIFICATION AND CHARACTERIZATION OF A CARBOHYDRATE BINDING PROTEIN FROM POLYSPHONDYLIUM-PALLIDUM IMPLICATED IN INTER CELLULAR ADHESION
AUTHOR: SIMPSON D L; ROSEN S D; BARONDES S H
JOURNAL: Biochimica et Biophysica Acta 412 (1): p109-119 1975
ISSN: 0006-3002
DOCUMENT TYPE: Article
RECORD TYPE: Citation
LANGUAGE: Unspecified
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40 SED1
44758 MOTIF
S5 3 SED1 AND MOTIF
? t s5/7/1-3

5/7/1
DIALOG(R)File 5:Biosis Previews(R)

0019570970 BIOSIS NO.: 200700230711
The EGF repeat and discoidin domain protein, %%%SED1%%%/MFG-E8, is required for mammary gland branching morphogenesis
AUTHOR: Ensslin Michael A; Shur Barry D (Reprint)
AUTHOR ADDRESS: Emory Univ, Sch Med, Dept Cell Biol, Atlanta, GA 30322 USA **USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 104 (8): p2715-2720 FEB 20 2007 2007
ISSN: 0027-8424
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: %%%SED1%%%, also known as MFG-E8, is a secreted protein composed of two EGF repeats (the second of which contains an RGD %%%motif%%%) and two discoidin/Factor V/VIII C domains. %%%SED1%%% is expressed by a wide range of cell types, where it participates in diverse cellular

interactions, such as sperm binding to the egg coat and macrophage recognition of apoptotic lymphocytes. Although %%%SED1%%% was originally identified as a milk protein, its function in the mammary gland remains unclear; suggested functions include inhibition of viral infection and clearance of apoptotic cells during mammary gland involution. We report here that SEDI has an unexpected obligatory role during mammary gland development. Unlike that seen in WT glands, %%%SED1%%%-null glands show severely reduced branching from epithelial ducts and from terminal end buds, which are thin and poorly developed. %%%SED1%%% is expressed by both luminal and myoepithelial cells in the developing epithelial duct, and binds to alpha(v) integrin receptors on myoepithelial cells leading to MAPK activation and cell proliferation. The absence of %%%SED1%%% leads to greatly reduced levels of activated MAPK and a concomitant reduction in cell proliferation and branching throughout the epithelial tree. These results suggest that %%%SED1%%% contributes, at least partly, to the intercellular signaling between luminal and myoepithelial cells that is required for branching morphogenesis.

5/7/2
DIALOG(R)File 5:Biosis Previews(R)

18108491 BIOSIS NO.: 200500015556
%%%SED1%%% function during mammalian sperm-egg adhesion
AUTHOR: Shur Barry D (Reprint); Ensslin Michael A; Rodeheffer Carey
AUTHOR ADDRESS: Sch MedDept Cell Biol, Emory Univ, Whitehead Biomed Res Bldg,615 Michael St, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: barry@cellbio.emory.edu
JOURNAL: Current Opinion in Cell Biology 16 (5): p477-485 October 2004 2004
MEDIUM: print
ISSN: 0955-0674 _(ISSN print)
DOCUMENT TYPE: Article; Literature Review
RECORD TYPE: Citation
LANGUAGE: English

5/7/3
DIALOG(R)File 5:Biosis Previews(R)

17912995 BIOSIS NO.: 200400283752
Identification of mouse sperm %%%SED1%%%, a bi-%%%motif%%% EGF repeat and discoidin-domain protein involved in sperm-egg binding
AUTHOR: Ensslin Michael A (Reprint); Shur Barry D
AUTHOR ADDRESS: Dept. of Cell Biology, Emory University School of Medicine, 615 Michael Street, Atlanta, GA, 30322, USA**USA
AUTHOR E-MAIL ADDRESS: mensslin@cellbio.emory.edu
JOURNAL: FASEB Journal 18 (4-5): pAbst. 759.2 2004 2004
MEDIUM: e-file
CONFERENCE/MEETING: FASEB Meeting on Experimental Biology: Translating the Genome Washington, District of Columbia, USA April 17-21, 2004; 20040417
SPONSOR: FASEB
ISSN: 0892-6638 _(ISSN print)
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Successful fertilization in mammals is dependent upon the species-specific recognition, adhesion and fusion between sperm and egg. Despite their fundamental importance, we still know little about the molecular basis underlying these events. Two sperm-egg recognition events have received the most attention; the initial adhesion between the sperm plasma membrane and the egg extracellular coat, or zona pellucida; and binding between membranes of the acrosome-reacted sperm and the egg plasma membrane. In this study we report the identification of %%%SED1%%% , a protein required for mouse sperm binding to the egg coat. %%%SED1%%% is homologous to a small group of Secreted cell-matrix adhesive proteins that contain Notch-like EGF repeats and Discoidin/F5/8 type C domains. %%%SED1%%% is expressed in the Golgi of spermatogenic cells and is secreted by the initial segment of the caput epididymis, resulting in %%%SED1%%% localization on the sperm plasma membrane overlying the acrosome. %%%SED1%%% binds specifically to the zona pellucida of unfertilized oocytes, but not to the zona of fertilized eggs. Recombinant %%%SED1%%% and anti-%%%SED1%%% antibodies competitively inhibit sperm-egg binding, as do truncated %%%SED1%%% proteins containing a discoidin/C domain. %%%SED1%%%-null males are subfertile and their sperm are unable to bind to the egg coat in vitro. These studies illustrate that Notch-like EGF and discoidin/C domains, protein motifs that facilitate a range of cellular interactions, participate in gamete recognition as well.

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DIALOG(R)File   5:Biosis Previews(R)
(c) 2007 The Thomson Corporation. All rts. reserv.
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15721260 BIOSIS NO.: 200000439573

Identification of a stromal cell type characterized by the secretion of a soluble integrin-binding protein, MFG-E8, in mouse early gonadogenesis

AUTHOR: Kanai Yoshiakira (Reprint); Kanai-Azuma Masami; Tajima Youichi; Birk Ohad S; Hayashi Yoshihiro; Sanai Yutaka

AUTHOR ADDRESS: Department of Veterinary Anatomy, University of Tokyo, Yayoi 1-1, Bunkyo-ku, Tokyo, 113-8657, Japan**Japan

JOURNAL: Mechanisms of Development 96 (2): p223-227 September, 2000 2000

MEDIUM: print

ISSN: 0925-4773

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: %%%Mfge8%%% (milk fat globule-EGF-factor 8) encodes a soluble integrin-binding protein containing two Notch-like EGF domains and two %%%discoidin%%% domains. It mediates cell-to-cell interaction by binding to integrin alphavbeta3 via the RGD motif of its second EGF domain.

%%%Mfge8%%% was first expressed at 10.0 dpc in cells of the coelomic epithelium covering the mesonephros, and at 10.5 dpc %%%Mfge8%%% -expressing cells were found in the mesenchyme underneath the coelomic epithelium of the genital ridges. At 11.5-12.5 dpc, %%%Mfge8%%% expressing cells were found in the stromal tissues subjacent to the coelomic epithelium that envelop the fetal gonad of both sexes. MFG-E8 protein was accumulated extracellularly in the interstitial tissues at the boundary of the mesonephros and the genital ridges. A comparison of the expression domains of %%%Mfge8%%% and several gene markers showed that %%%Mfge8%%% expression did not significantly overlap with the expression domain of Wt1 or Emx2, but partially with that of Lhx9 in 11.5-day XY gonads. Comparison of the expression pattern of %%%Mfge8%%% with that of Hsd3beta1 in the 12.5-day testes revealed that the %%%Mfge8%%%-positive cells constitute a previously uncharacterized somatic cell type which is distinct from Sertoli cells, Leydig cells, peritubular myoid cells and the endothelial cells.

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